



## Short Communication

# First record of *Cheilopogon intermedius* Parin, 1961 (Actinopterygii: Beloniformes: Exocoetidae) from Odisha coast, India

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### Abstract

The current paper adds Intermediate flyingfish, *Cheilopogon intermedius* Parin, 1961 (Beloniformes: Exocoetidae), as a new record to the ichthyofaunal resource list of Odisha. The fish was caught by the fisherman off Paradip, Odisha, India. This forms the second record along east coast of India after it was recently reported from the West Bengal coast. The present study provides information on morphometric characters and meristic counts of the flyingfish.

**Keywords:** Bay of Bengal, Exocoetidae, Intermediate Flyingfish, New Report, Paradip

### Introduction

The order Beloniformes consists of six families, of which the family Exocoetidae has a total of 74 species (Fricke *et al.*, 2021). The flying fish family Exocoetidae is one of the unique and attractive fish groups that actively glide in the air with the help of its strong caudal, pectoral, and pelvic fins (Nelson, 2006). Indian coastal waters are reported to have inhabited by 24 species belonging to 6 genera under the family Exocoetidae (Jayakumar *et al.*, 2019). Only three species were so far reported from Odisha coast, viz., *Cypselurus poecilopterus* (Valenciennes, 1847), *Exocoetus volitans* Linnaeus, 1758 and *Parexocoetus mento* (Valenciennes, 1846) (Barman *et al.*, 2007; Mishra *et al.*, 2010).

The present paper provides information on the occurrence of *Cheilopogon intermedius* Parin, 1961 along Odisha coast based on meristic and morphometric analysis.

### Material and Methods

Three specimens of flying fishes were collected from the fish landing centre of Paradip, Odisha, India. Specimens were photographed soon after collection and preserved

with 10% formalin. Detailed meristic counts and morphometric measurements were taken with digital callipers with an accuracy of 0.1 mm. Scales and fin rays were counted with the aid of a stereo-zoom microscope, Leica S9i. The species identification follows Parin (1999). After identification, two specimens were deposited at Estuarine Biology Regional Centre, Zoological Survey of India (EBRC/ZSI), Gopalpur-on-Sea, Odisha and one specimen transferred to the NZC of Marine Fish Section, Zoological Survey of India, Kolkata.

### Results

Class ACTINOPTERYGII  
Order BELONIFORMES  
Family EXOCOETIDAE

Genus *Cheilopogon* Lowe, 1841

*Cheilopogon intermedius* Parin, 1961

Intermediate flyingfish (Figure 1)

1961. *Cheilopogon* (*Ptenichthys*) *intermedius* Parin, *Trudy Instituta Okeanologii Imeni P.P. Shirshova*, 43: 74, fig. 13 (type locality: 6°15'S, 153°44'E, "Vityaz" station 3663).

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**Figure 1.** *Cheilopogon intermedius* Parin 1961 (EBRC/ZSI/F 12069; 163 mm SL) collected from Paradip fish landing centre, Odisha, India.

**Materials examined:** ZSI/F 13683/2, 1 ex, 184mm SL; EBRC/ZSI/F 12069, 2 ex, 146–163 mm SL; Paradip fish landing centre, 20.iii.2019, Swarup R. Mohanty.

**Diagnostic characters:** Elongated body, its depth at gill opening 5.0–5.2 in standard length (SL). Head short, 4.0–4.1 in SL. Snout blunt and short than the eye, 3.4–3.6 in head length (HL); eyes large, 2.9–3.0 in HL; interorbital space, 2.4–2.5 in HL. Mouth small with subequal jaws; upper jaw non-protrusible; palatine teeth present and teeth minute on both jaws. Dorsal fin originates before origin of anal fin and predorsal distance, 1.3–1.5 in SL. Anal fin originates below the 3<sup>rd</sup> ray of dorsal fin and preanal distance, 1.2–1.3 in SL. Pectoral fin elongate, with only the first ray unbranched, tip of the fin reaching beyond anal fin base and its length, 1.6–1.7 in SL. Pelvic fins long, reaching well beyond anal-fin origin and its length, 3.5–3.6 in SL, its insertion midway between head and lower lobe of caudal fin. Lower lobe of the caudal fin longer than the upper lobe. Predorsal scales 34. Dorsal fin rays 12; anal fin rays 7; pectoral fin rays 14–15, first ray unbranched.

**Colour:** Dorsal side of the body dark metallic blue, lateral and ventral side silvery. Lobes of caudal fin dusky and without dark pigmentation; pectoral fin without spots, but with a pale oblique cross band and few lower rays pale; ventral fin blackish distally; dorsal fin dusky, but without dark black spot.

**Remarks:** Most of the anterior rays of the dorsal fin are broken and hence, height of the dorsal fin could not be

measured. However, pale colour of the dorsal fin and minute teeth on the jaws lead us to run through the key given in Parin (1999) to confirm identity of the species.

## Discussion

*Cheilopogon intermedius* is known to have a wide distribution in the Indo-West Pacific, from the west coast of India to Palau and Solomon Islands in the east (Parin 1999). Based on the reports by Parin and Lakshminaraina (1993), this species was known to occur along the west and southeast coasts of India (Jayakumar *et al.*, 2019). Recently *C. intermedius* was reported from Digha, state of West Bengal, India (Ray *et al.*, 2020). The present report forms its first record from Odisha coast, indicating its occurrence almost all along east coast of India.

However, the identification of flying fish species always remains under confusion. The genus *Cheilopogon* is differentiated from *Cypselurus* only by the length of the lower jaw, i.e., lower jaw included under upper jaw in *Cypselurus*, while *Cheilopogon* have lower jaw of equal length or little longer than upper jaw (Parin, 1999). Of the total 32 species recognized in the genus *Cheilopogon*, seven species occur along Indian waters with three more species from Andaman and Nicobar Islands (Jayakumar *et al.* 2019; Fricke *et al.* 2021). *Cheilopogon nigricans* (Bennett) and *C. spilopterus* (Valenciennes) reported by Barman and Mishra (2006) were treated as *C. abei* Parin and *C. suttoni* (Whitley & Colefax) respectively by Jayakumar *et al.* (2019). Since both *C. nigricans* and *C.*

*spilopterus* are valid extant species, it may require further specimen based studies for their validation from Indian coast if at all present.

Out of these 10 species from Indian waters under discussion, three species, *C. atrisignis*, *C. spilopterus* and *C. suttoni*, have scattered small dark spots on pectoral fins, and two species, *C. cyanopterus* and *C. spilonopterus*, do not have pale cross bands on pectoral fin (Parin, 1999). The remaining six species have pectoral fin with pale oblique cross band and pelvic fin insertion closer to head than to lower caudal fin lobe except *C. intermedius* which is distinct in having pelvic fin insertion at midway between head and lower caudal fin lobe (Parin 1999). Further, *C. abei*, *C. furmosus* and *C. nigricans* have relatively higher dorsal fin, with height less than 10 times of standard length and a prominent dark spot on it (Gibbs & Staiger 1970; Parin, 1999; Shakhovskoy & Parin, 2019). Apart from difference in pelvic fin position, *C. arcticeps*

and *C. furcatus* differ in the absence of palatine teeth (Parin 1999), which is present in *C. intermedius* and more predorsal scales (24 in *C. intermedius* vs 26–29 in *C. arcticeps*, 29–33 in *C. furcatus*).

Since, only three species in three different genera, *Cypselurus* Swainson, 1838, *Exocoetus* Linnaeus, 1758 and *Parexocoetus* Bleeker, 1865, were reported so far from Odisha coast (Barman *et al.*, 2007; Mishra *et al.*, 2010), the present report adds up the fourth flying fish genus, *Cheilopogon* Lowe, 1841, and the fourth species, *C. intermedius* Parin 1961, to the list of ichthyofaunal resources of Odisha coast, India.

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